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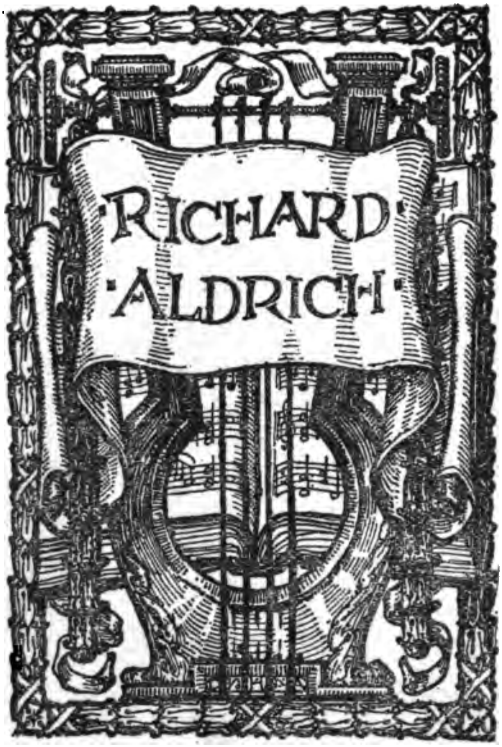
BREATHING
FOR
VOICE PRODUCTION

H. H. HULBERT

KE 36012



NOVELLO'S
ELEMENTARY MUSIC MANUALS.
EDITED BY W. G. McNAUGHT.

No. 2.

BREATHING

FOR

VOICE PRODUCTION

BY

H. H. HULBERT, B. A. OXON.,
M.R.C.S., L.R.C.P., &c.

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PREFACE.

So much has been written during recent years regarding Breathing in relation to Voice Production and General Health, it may seem superfluous to say more on the subject. But the author feels strongly that the particular method—the *Lateral Costal Method*—of breathing he advocates has not received due attention, and he therefore ventures to urge its claims to consideration.

De Vere House,
Bexhill.
July, 1903.

CONTENTS.

	SECTION.	PAGE.
Problems of Voice Production . . .	1– 6	—
Definitions of Terms used	7–19	—
Diagram of the Diaphragm . . .	—	7
The Abdominal Muscles	20–24	—
The Lateral Costal Method of Breathing .	25–35	—
The Position or Pose of the Body. . .	36–46	—
Systems of Physical Culture . . .	47	—
Eight Special Physical Exercises for the Attainment of a Correct Pose . .	—	21–25
Breathing Exercises on the Lateral Costal System	—	25–30
The Control of the Breath . . .	—	30–32
Chest Expansion by the Abdominal Muscles	—	32–35
Chest Expansion by the Back and Arm Muscles	—	35, 36
Special Exercises for the Abdominal Muscles to secure a good figure, &c.	—	36, 37
Conclusion	—	37, 38

PART I.

BREATHING FOR VOICE PRODUCTION.

1. The study of VOICE PRODUCTION in general presents three main problems:—

1.—BREATHING. The motor power and its control—the force that creates the vibration.

2.—THE ACTION OF THE LARYNX. The fixing of the rate of vibration. The creation of the sound.

3.—RESONANCE. The treatment and reinforcement of the sound created. The influence of mouth, pharynx, soft palate, tongue, nasal cavities, lips, etc.

2. The first problem, BREATHING, is physiological. The possibilities can be made fairly clear, and most of the muscular action involved can be consciously controlled. The only questions that arise are concerned with the relative advisabilities of the use of this or that possibility.

3. The second problem, LARYNGEAL ACTION, is also physiological, but is obscure and provokes endless controversy. This obscurity arises partly from the difficulty of observing the action of the living larynx whilst it is dealing with an invisible medium, the air; and partly because we are unable to gain consciousness of the action involved.

4. The third problem, RESONANCE, is again physiological, but it is also psychological. The æsthetic faculties powerfully influence the result. Such conscious control can be attained, but the due proportionment of the numerous factors that go to make tone quality is scarcely analysable.

5. Whatever may be said regarding the second and third problems as separate studies it is generally admitted that unless the first problem is solved the solution of the others is impeded.

6. The object of the present work is to urge that a certain method of breathing, to be described, is the proper method for singers and speakers as well as for general hygiene; and to plead for attention to THE HEALTHY ACTION OF THE WHOLE BODY as a rational first principle in physical education.

No effort is made to deal with the problems of Laryngeal Action and Resonance or the placing of the voice.

7. Short preliminary definitions of the terms used to describe the bodily structure and muscles concerned with breathing will now be given.

The Thorax.

8. The THORAX in the skeleton is a bony framework, with the STERNUM or breastbone in front and the SPINE behind, the two being connected by the ribs, twelve on each side. The ribs are made in the shape of a bow, the lower ribs are longer, and have a larger bow than the upper, so that when they are raised they increase the size of the thorax from side to side, and from before backwards by pushing forward the sternum.

The Lungs.

9. The Lungs are two masses of elastic sponge-like tissue. They contain numerous hollow air tubes and air cells, which, when filled, cause the organ to expand. The lungs fill the whole of the thorax except the part occupied by the Heart.

The Intercostal Muscles and the Diaphragm.

10. The muscles directly engaged in breathing are 1st, the muscles attached to the ribs, connecting the rib above with the one next below, and called the INTERCOSTAL MUSCLES; and 2nd, the DIAPHRAGM, which forms an air-tight muscular partition between the chest and the abdomen.

Respiration.

11. If we would thoroughly understand the science of breathing, we must investigate the actions of these particular muscles, and learn how they act under all circumstances.

Respiration, or breathing, consists of two distinct parts, called, respectively, inspiration and expiration. By inspiration air is made to enter the expanded chest and lungs, and by expiration it is ejected as the chest and lungs become contracted.

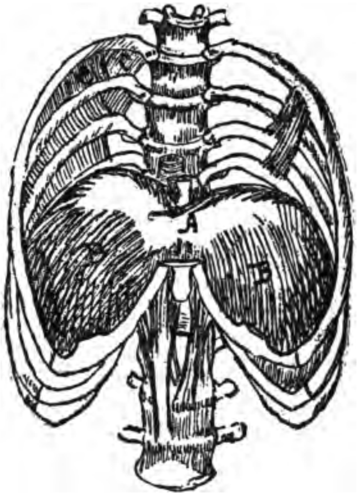
The fuller the inspiration, the greater the amount of the air that can be taken into the lungs, and the greater the potential motor power. This power can be concentrated or wasted by the method used in its ejection during expiration.

Therefore we have to find out how to fully expand the lungs during inspiration, and how to economize the breath during expiration.

Pressure of Air.

12. Air exerts a pressure of 15 lbs. to the square inch. When the cavity of the thorax is expanded by muscular action this pressure inside the lungs forces them to fill up or follow the chest wall. There are two means by which this expansion may be effected: 1st, by the raising of the ribs by the contraction of the intercostal muscles, and 2nd, by the alteration in the shape of the floor of the thorax by the contraction of the diaphragm.

The Diaphragm, etc., from the Front.



A. Tendon. B. Diaphragm. C. Intercostal Muscles.

13. Note the trefoil arrangement of the tendon, **A**, and the distinct attachments of the muscular fibres, **B**, to the tendon on the one side and to the bones on the other.

The action of the muscle is determined by the fixation of one or other of these attachments.

If the tendon is fixed, the ribs are moved; if the ribs are fixed, the tendon is moved.

The two Attachments of the Diaphragm.

14. The abdominal muscles (see SECTS. 20-24) have the power of fixing the two attachments of the diaphragm. If these muscles are firmly contracted, the organs in the upper part of the abdomen are *fixed in the arch of the diaphragm.* The tendon is now supported and cannot be depressed. The muscular fibres elevate the ribs by shortening in contraction.

But if the abdominal muscles are allowed to *protrude forward* in a relaxed state, the tendon is *unsupported* and *descends* as the muscular fibres shorten in length.

This conclusion is different from that usually taught. Writers and teachers taking note only of the action of the diaphragm in which the tendon descends when the ribs are fixed, usually make the erroneous statement, *that the ribs can be elevated and the diaphragm depressed at one and the same time. This is physically impossible.* If the diaphragm contracts when the tendon is fixed, the action is similar to that of the *intercostal muscles* (see SECT. 17); but if the tendon descends, the action is *directly opposed* to the intercostal movement.

The Expansion of the Base of the Chest.

15. It is clear from a mathematical view, that in the expansion of a cone the diameter of the base is by far the most important diameter to be considered. This diameter of the cone-shaped chest is increased by the combined action of the intercostals and the diaphragm. The ribs being shaped like a bow and the joints between the ribs and the spine being arranged to allow the bows to move outwards when the ribs are elevated; it follows that the diameter of the base of the chest from side to side is increased whenever the ribs are raised. The lower ribs being longer and more bowed in shape than the upper, the diameter of the base is still further increased from side to side; the breast bone is also thrust forward, so that an increased measurement is obtained in the diameter of the base of the chest from front to back.

Abdominal Breathing. What it Sacrifices.

16. *In abdominal breathing the important increase in the diameter of the base described above is sacrificed*, and all that is substituted for it is the comparatively unimportant increase in the diameter from the top to the bottom of this cone-shaped chest.

No scientific explanation has been given as to how expiration can be subjected to the will when the abdominal system of breathing is practised, whereas by the method adopted in this book there is no difficulty in giving a full and satisfactory scientific explanation of *how expiration is completely controlled by the will.*

Quain's Explanation.

17. The following is a quotation from an authoritative anatomical work, Quain's "Text Book of Anatomy."

"*Action of the intercostal muscles.*—The manner in which these muscles act has been a subject of controversy from an early time, and is not yet thoroughly determined. It is now generally agreed that the external muscles are elevators of the ribs, and therefore muscles of inspiration; but as to the action of the internal muscles there is still considerable difference of opinion. According to one view, defended by Haller, the external and internal layer have a common action. . . . According to another view, that of Hamberger, the external intercostal muscles are admitted to be elevators, but the internal are held to be depressors of the ribs. More recently these views have been modified by Hutchinson to the extent of admitting that the external intercostal muscles, and the parts of the internal intercostals placed between the costal cartilages, elevate the ribs; and that the lateral portions of the internal intercostals act as depressors.

"*The action of the diaphragm* is more easily understood than that of the intercostal muscles. By its contraction and descent its convexity is diminished, the abdominal viscera are pressed downward, and the thorax expanded vertically. The fibres arising from the ribs, being directed nearly vertically upwards from their origins, must tend to raise those ribs, and Duchenne has shown that the contraction of the diaphragm by itself elevates and expands the upper ribs to which it is attached, but only so long as the vault of the muscle is supported by the abdominal viscera, for when they are removed it no longer has that action.

"*Expiration.*—In normal and quiet expiration the diminution of the capacity of the chest is mainly, if not wholly, due to the return of the walls of the chest to the condition of rest, in consequence of their own elastic reaction, and of the elasticity and weight of the viscera and other parts displaced by inspiration; the lungs themselves, after distention by air, exert considerable elastic force, and no doubt the ribs and their cartilages react strongly by their elastic return from the elevated and expanded condition into which they had been thrown by the inspiratory forces."

Unsatisfactory Explanation of Expiration.

18. It does not at present appear clear from this description of the actions of the breathing muscles that there exists a satisfactory explanation of how the expiration can be controlled, and yet this explanation is of paramount importance to the student of the correct method of voice production; for by the ejection of the breath the vocal cords are made to vibrate, and by their vibrations sound is produced, and this sound will be pure or faulty according to the manner in which the air is made to play upon the cords.

We have learnt that the chest is expanded in inspiration by the raising of the ribs by the contraction of the intercostal muscles, and by the depression of the floor of the chest by the contraction of the diaphragm, and that the elasticity of the raised ribs and cartilages, and of the stretched air cells and tubes of the lungs, and of the displaced viscera, create a sufficient force for the contraction of the chest in expiration; *but there is no mention made of the way in which this elastic force can be controlled by our will.* We must therefore make a more extended inquiry into the mechanism of breathing in order to discover the controlling influence.

Keynote of the Position.

19. The keynote of the position is in the action of the diaphragm described by Duchenne, who has shown that *the contraction of the diaphragm by itself elevates and expands the ribs to which it is attached* *o long as the vault of the muscle is supported by the abdominal*

viscera. The diaphragm is attached to the spine behind, to the lower six ribs at the sides, and to the sternum in front, and forms an arch over the organs contained in the abdominal cavity; in fact, the stomach and liver fit into the concavity of the arch, and are only separated from the lungs and the heart, the organs contained in the chest, by the muscular partition, the diaphragm. Hence the cause of palpitation and shortness of breath from flatulency and enlarged liver, for the heart and lungs, being displaced by the enlarged abdominal organs, fail to do their work properly.

THE ABDOMINAL MUSCLES.

Action of Abdominal Muscles.

20. The abdominal viscera can only support the vault of the diaphragm when they are held in position by the contraction of the abdominal muscles. These muscles form the walls of the abdomen and stretch from the chest above to the bones at the bottom of the spine, which, together, form a sort of basin and are named the pelvis. These abdominal muscles are called oblique and straight, according to the direction their fibres take. If when lying flat in bed you feel your ribs forming the chest, the bones of THE PELVIS, and the muscles forming the space between them, you will get an intelligent idea of the position of the abdominal muscles. If you try to raise yourself straight up from a recumbent into a sitting position the straight muscles will immediately stand out prominently in front; if you raise yourself sideways the oblique muscles at the sides become prominent.

Quain's Description.

21. In this connection, Quain says:—

"The abdominal muscles not only form a great part of the wall to enclose and support the abdominal viscera, but by their contraction are capable of acting successively on those viscera, on the thorax, and on the vertebral column. When the pelvis and thorax are fixed the abdominal muscles constrict the cavity and compress the viscera. . . .

"If the vertebral column be fixed, these muscles raise the diaphragm by pressing on the abdominal viscera, draw down the ribs, and contract the base of the thorax, and so contribute to expiration; but if the vertebral column be not fixed the thorax will be bent directly forwards when the muscles of both sides act, or inclined laterally when they act on one side only, or rotated when the external oblique of one side and the opposite internal oblique act in combination.

"If the thorax be fixed the abdominal muscles may be made to act on the pelvis: thus, in the action of climbing, the trunk and arms being elevated and fixed, the pelvis is drawn upwards, either directly or to one side, as a preparatory step to the elevation of the lower limbs."

It seems quite clear from this description of the action of the muscles of respiration and of the abdominal muscles, that the abdominal muscles have many and varied functions to perform, and that they accordingly merit much more attention than the majority of people seem inclined to bestow upon them. From a health point of view, they certainly rank amongst the most important muscles of the body, and yet they are the most neglected. Let us examine their function more closely and learn the position they take in vocal culture.

The abdominal muscles form the wall of the abdomen and enclose the important organs contained therein.

22. A natural girdle is thus formed to support the abdominal organs; the chief of these are the stomach and intestines, the liver, the pancreas, spleen, and kidneys. The digestive organs suffer most if the muscles become weak and flabby, for they, being insufficiently supported, gradually slip down into the protuberance formed by the distension of the weakened wall. Cause and effect react one upon the other. The poorly-developed abdominal muscles have not sufficient strength to support the weight of the viscera. They stretch and protrude, and fat forms in and around them; the digestive organs cannot faithfully fulfil their purpose, and the whole system, including, of course, the abdominal muscles, suffers, and they become weaker still; hence more protuberance and more displacement, and indigestion becomes worse and worse.

By contraction the abdominal muscles press upon the abdominal viscera.

23. The muscular action of the digestive organs is thus stimulated, and as it is by the muscles of the stomach and bowels that the food is carried from one part to another, every opportunity is afforded to the digestive juices to so act upon the different foodstuffs as to make them in a suitable condition for their being absorbed by the blood. Unless this action, called the peristaltic action of the muscles of the alimentary canal, is duly performed, a form of indigestion, commonly called sluggish digestion, accompanied by much flatulency, is sure sooner or later to be induced; the foundation, as it were, of innumerable other ills, nervous affections of all kinds—hysteria, hypochondriasis, and the like; inability to enjoy life either when at work or at rest.

The inert organ, the liver, is quite dependent upon the contraction of the abdominal muscles for the promotion of a good circulation of blood within itself. It contains no muscles of its own, and so has no inherent motor power for pushing on its circulation; but every time it is squeezed between the diaphragm and the abdominal muscles it is emptied of its blood, and a new supply is allowed to flow in. People leading sedentary lives are certain to suffer from a congested state of their liver, and the symptoms are too well known to need any description here. They can be relieved, however, by proper exercise of the diaphragm and the abdominal muscles, for whenever any of these muscles contract, they must press upon the liver; but it is of course still more forcibly acted upon when it is squeezed between the contracting muscles.

By contraction the abdominal muscles act upon the thorax, and have a twofold effect.

(*a*) THEY ASSIST EXPIRATION IN THE FORM OF BREATHING, CALLED ABDOMINAL BREATHING, BY PRESSING ON THE ABDOMINAL VISCERA, DRAWING DOWN THE RIBS, AND CONTRACTING THE BASE OF THE THORAX.

24. When the diaphragm contracts, the floor of the thorax becomes changed from a dome-shape to one almost flat—in other words, the diaphragm descends, and pushes the abdominal organs downwards. Space has to be found for them, and this is done by the abdominal muscles being pushed forward, and so the shape of the cavity is changed.

This descent of the diaphragm increases the size of the chest vertically, and air rushes in to fill up the increased space; this is the form of inspiration called diaphragmatic, which is much more commonly used by men than by women. By the inspiration the diaphragm is depressed, and the abdomen is pushed forward; then follows an expiration, the displaced viscera and abdominal wall, by reason of their elasticity and weight, press against the diaphragm, and it is pushed up again in its relaxed state to its former position, arching up into the chest; thus the air is ejected from the contracted lung space. This particular action is brought about entirely by the contraction of the diaphragm; the viscera and the abdominal muscles play a passive part—that is to say, they have no special active part to play in the movement, but they are stimulated to a certain extent by being passively moved. In the other action of the abdominal muscles in breathing, the circumstances are entirely different, for:—

(*b*) THEY ASSIST IN THE EXPANSION OF THE CHEST AND IN CONTROLLING EXPIRATION.

If, instead of allowing the diaphragm to descend when it contracts, and unresisted to push the abdominal contents and its wall forward, the liver and stomach are fixed against it and are prevented from descending by the contraction of the abdominal muscles as in the action of the diaphragm described by Duchenne. Then, instead of causing a protuberance of the wall of the abdomen, it elevates and expands the chest, and a full expansion of the thorax can thus be obtained, which is not only of great importance for the furtherance of health and beauty of figure, but is also of inestimable value to the singer, speaker, and elocutionist; for he has a method of breathing entirely under the control of his abdominal muscles, and, if these muscles are well developed, the truly scientific means of managing the breath properly, is secured. More air will enter the chest when expanded by this method than is ever possible by the unrestrained contraction and descent of the diaphragm.

THE LATERAL COSTAL METHOD OF BREATHING.

How this method works.

25. By this method of breathing—which we will henceforth call the LATERAL COSTAL method—the contracted abdominal muscles fix the stomach and liver in the arch of the diaphragm, so that in its contraction it expands and raises the chest during inspiration. In this way a full inspiration is effected, for air rushes in to fill the enlarged space in the lung in the expanded and elevated chest—the elastic force which naturally comes into play at the end of inspiration can easily be held in check by the contracted abdominal muscles—and thus the large volume of air in the chest can be controlled at will by the voluntary relaxation of the contracted abdominal muscles, which are now all-powerful, so much so that the breath is entirely subservient to their action, and can be emitted quickly or slowly, concentrated or rarified, forcibly or gently, in gusts or prolonged blasts.

The old Italian School.

26. It is maintained by the Author that this is the explanation of the method used by the old Italian School, in which it was taught that the abdominal wall should be *slightly retracted*—that is, that the abdominal muscles should be contracted, and the vault of the diaphragm supported, and that a full inspiration be taken, by which the diaphragm raises and expands the chest.

This scientific explanation is, so far as the Author is aware, quite new, as are also the hygienic and vocal arguments in its favor, as opposed to those advanced in support of the abdominal system introduced into this country by Mandl in 1855.

General conclusion.

27. When all the important functions of the abdominal muscles are taken into full consideration, it seems almost impossible to draw any other conclusion than that by a judicious development of their power we are afforded a means of developing the chest and of controlling the expiration, whereby voice-users are doubly benefited. The potential strength of the voice is increased by the additional lung expansion, and the breath controlled by the strong abdominal muscles can be utilized at will for the sustaining of a prolonged note, which can be kept even and pure at the same intensity of sound, or made to swell or diminish according to the requirements of the circumstances.

Abdominal breathing unhealthy.

28. A further important fact must be noted. Abdominal breathing must have an unhealthy tendency, for if the abdominal muscles are constantly pushed forward in a relaxed condition they become stretched and weak. An abdominal protuberance takes place, fat forms in and around the flabby muscles, and the troubles already described are sooner or later experienced by singers who adopt the abdominal system of breathing. Are not singers often remarkable for their protuberant abdomens? They appear as if they had allowed their chests to "slip moorings." It is not at all uncommon to hear the remark made that it is impossible to sing well *unless you are fat.* This is a great fallacy. Singers cannot expect to keep the vocal apparatus in good condition unless they pay the greatest attention to their health. It is quite possible that a singer possessing an unusually good voice may be able to achieve great results for a time; but this voice will not last so long as it will if the laws of nature are duly heeded. People with protuberant abdomens never enjoy good health, seldom live to a good old age, and their enjoyment of life is sadly interfered with by a troublesome liver, an imperfect digestion, or innumerable other affections.

Standard medical works have been quoted from, because in attacking methods of teaching that have a firm hold upon the estimation of the public, it is advisable to use all the influence that is available. It will be well now to sum up the conclusions arrived at, even at the risk of repetition.

SUMMARY.

Action of the diaphragm.

29. The arched muscular floor of the thorax is formed by the diaphragm, which becomes flattened when it contracts, and so it increases the size of the thorax from above downwards. If the diaphragm is unresisted during contraction it depresses the contents of the abdomen and pushes

forward its anterior wall; if, on the other hand, it is resisted by the contracted abdominal muscles, the stomach and liver are firmly fixed against the under part of the dome-shaped partition. So that when it contracts, the diaphragm raises the chest and expands the ribs TRANSVERSELY, and the force exerted by the stretched elastic tissue in the expanded chest is counterbalanced by the contraction of the abdominal muscles; and thus the expiration is controlled by counterbalancing the elasticity of the lungs and chest wall which come into play, and eject the breath as soon as the muscles of inspiration cease to work.

Effect on breath control.

30. The processes by which these forms of breathing are accomplished have a marvellous effect upon the voice. The air being the motor power of the voice, common sense teaches us that the more thoroughly the lungs are filled with air, and the more easily that air is controlled, the more effective and perfect will be the machine through which the artistic impulses of the singer are to find vent. How, then, do we gain the greatest expansion of lung, and how can we best control our breathing?

How Breathing is best controlled. The fixing of the diaphragm.

31. The Author submits that this is accomplished by fixing the diaphragm, THROUGH THE ACTION OF THE ABDOMINAL MUSCLES; for, by this method, the lower ribs are most efficiently raised, the action of the intercostals is aided, and the lungs are everywhere filled with air and are kept filled until the abdominals are relaxed, which can be done quickly or slowly according to the wish of the singer.

Neglect of upper part of the lungs' contribution to consumption.

32. This filling of the whole of the lungs with air MUST BE THE MOST HEALTHY WAY OF BREATHING, for if only the lower part of the lungs are filled and the upper part left unused, then, from degeneration, the upper part becomes a suitable soil for the growth of the tubercle bacillus, the cause of consumption. Those who practice the abdominal breathing—that is, the allowing the diaphragm in its descent to push the abdominal viscera before it—are likely to fail to use the upper parts of the lungs sufficiently. This result the author's repeated experience has confirmed.

Collar-bone breathing.

33. It is not necessary again to dwell upon the abdominal troubles that are likely to arise, but it is as well to point out that there is still a third form of breathing, clavicular, or collar-bone breathing, which unfortunately is far from uncommon. This form of breathing is accomplished by the contraction of what are called the extraordinary muscles of respiration, wherewith, by moving the shoulders, and even by making

grimaces, a spurious form of extra expansion is obtained. This method is, of course, entirely wrong and unscientific, for it is an effort to move the highest ribs—which are almost inflexible. The result of bringing these extra muscles into play is to constrict the throat.

Partial descent of the diaphragm. The breathing of women.

34. It is just possible that a partial descent of the diaphragm may be advantageous in the case of a man, who naturally makes more use of his diaphragm in breathing than a woman; but to push it to the extent of stretching and weakening the abdominal muscles, as is so often taught, is, in the Author's opinion, harmful. In the case of women, nature has ordained that she should make use of her intercostal muscles in breathing, so that she may not be embarrassed by the changes that take place in the organs peculiar to her sex; and for her to violate this law by cultivating abdominal breathing is to defy nature.

Lack of Anatomical Knowledge.

35. There is another point worthy of notice, and that is, that many teachers of the art of breathing, from lack of anatomical knowledge, profess to teach one thing in theory, and luckily teach another in practice. One frequently comes across instances in singers who think they make use of the abdominal breathing, but who, on the contrary, use the lateral costal system, and hence the pernicious abdominal breathing gets credit for results which are not due to it.

THE POSITION OR POSE OF THE BODY.

36. It is of the highest importance that great attention should be bestowed upon the position or pose of the different parts of the body before any breathing exercise—or, in fact, any physical exercise—is attempted.

Common Deformities.

37. A chance glance sideways at people as they walk along the streets will be sufficient to prove to even the most casual observer that the majority carry themselves badly. One or more of the following defects will be noticed: the chin poked forward, the head improperly posed upon the neck, the abdomen protruded, the chest retracted, the knees more or less bent, the toes at a variety of angles—some too much turned out, others too much turned in—the arch of the foot dropped, the ankles over on the inside, the knees bowed or knock-kneed, the hips higher on one side than the other, the back curved either forward or to one side, one shoulder lower than the other, or the upper part of the spine rounded or bowed in shape. Some of these defects of carriage are no doubt the results of heredity, but manner of living and neglect of muscular exercise

are the causes in most instances. We have only to remember how young soldiers under drill quickly acquire an erect figure to conclude that the defects described are not natural to the average man.

Proper Pose indispensable.

38. If exercises are performed while the position is faulty, the defect in the figure is still further intensified. For correction it is absolutely necessary to insist upon a proper pose being assumed at the very outset.

To the uninitiated it may seem unnecessary to dwell upon the carriage of the body; but seeing that it is so exceptional for either men or women to possess a really good carriage naturally, and that it is so necessary for the health of the body that a good figure should be at all times maintained, it will not be out of place to state the laws that govern a good carriage.

The Muscles that make a Good Figure.

39. Special muscles exist for the purpose of keeping the body erect, the chief, besides the leg muscles, being those situated at the back of the neck and at the back of the spine; these, when properly developed, keep the head well balanced upon the shoulders, the shoulders drawn backwards and the chest raised so that it forms the most prominent part of the body. By physical neglect of these muscles the chin is poked forward, the shoulders are rounded, the chest becomes flattened and contracted, and the abdomen is protruded. If the body is held erect by the proper muscles, not only is the figure improved, but fatigue is not so quickly induced and even the height is increased. After walking a while with the shoulders and back rounded a tired feeling is experienced in the small of the back, which is relieved if the back is straightened and the shoulders are retracted.

Other muscles that are of great value in keeping the figure in a good condition are those forming the walls of the abdomen, for they form a natural girdle and keep the contents of the abdomen in their proper position.

40 The important conclusions from these facts may be stated as follow:—

AN ERECT POSTURE, AN EXPANDED CHEST, A RETRACTED ABDOMEN ARE INDISPENSABLE TO PERFECT HEALTH AND VOCAL CULTURE.

Other exercises than those for breathing necessary.

41. That the vocal apparatus may be placed under the best condition for work we must not be content to prescribe breathing exercises only, but also exercises that will ensure a good figure (an erect head, an expanded chest, and a retracted abdomen).

The abdominal muscles, besides forming a natural girdle whereby the body girth is kept within reasonable bounds, have also a power in keeping the chest raised, and so help to preserve the erect figure; and inasmuch as these muscles are unsupported by any kind of framework, such as exists in the chest, there is all the more reason for them to be kept in a good condition.

Common sense makes it quite evident that the man or woman with an erect head, a full chest, and a well-shaped abdomen will be in a position to make the best use of the vocal apparatus, and will be likely to maintain good health.

Rounded shoulders, contracted chests, protuberant abdomens, interfere with the activity of all parts of the body, both directly and indirectly; the circulation suffers, for it is carried on more actively and easily when the body is carried erect.

The blood itself, by which all the organs are nourished, is affected by imperfect breathing, for it is impossible for the partially-expanded lung to completely aerate the blood, hence there is a deficiency of oxygen — the vitalizer, as it were, of all the tissues of the body. The digestive organs, displaced by having slipped down into the protuberance formed by the laxity of the abdominal walls, are at a disadvantage, and cannot efficiently prepare the food for its assimilation by the blood, which accordingly becomes deficient in nourishment.

The unexpanded lung loses much of its motor force for breathing purposes, and the lax abdominal muscles are wanting in power, and thus both the breathing power and the means of controlling that power are to a great extent lost; a loss that must hamper the acquisition of health and of strength of voice.

The Golden Rule.

42. The rule cannot be too vigorously enforced of the absolute necessity of the correct pose of the body being assumed before any exercise is attempted.

This rule is often overlooked by those who teach exercises, for, in their keen endeavors to develop the showy muscles, the biceps, triceps, deltoids, and pectorals, or one particular part of the body, they are apt to disregard the welfare of the body as a whole. The acquisition of enormous muscular limbs can do little towards the furtherance of health, beauty of physique, or power of voice — IN FACT, AN OVER-DEVELOPMENT HAS A STRONG TENDENCY TO USE UP THE VITAL FORCE THAT PROPERLY BELONGS TO THE VITAL ORGANS.

All the movements of the body are effected by the contraction of its different muscles, so it becomes necessary to harmoniously develop them all. Stiff, clumsy, and slow movements result from an uneven or over-development; grace, agility, and charm in movement are the outcome of the practice of a scientific knowledge of muscle culture.

The correct Pose.

43. The Feet are firmly planted upon the ground with the heels together and the toes turned outwards at right angles to one another.

The Knees are straight and nearly touch one another.

The Hips are well drawn back—thus the front of the pelvis is behind the front of the chest bone, and the abdomen is retracted behind the line of the chest, which becomes the most prominent part of the body.

The Weight of the Body is equally distributed upon each leg and the centre of gravity is made to fall upon the middle of the joints of the leg with the spine in its normal position.

The Chest is raised and made prominent.

The Shoulders are drawn backwards and the weight of the arms transferred from the chest to the shoulder blades.

The Chin is drawn slightly in, so that its point is behind the line of the chest.

The Head is held erect and nicely balanced upon the neck without being stiff.

The Arms hang straight down by the sides of the body, the fingers close together, and the thumbs pointing forwards.

The Super-erect Pose.

44. By standing with the back against a wall and making the back of the head, the shoulders, the lowest part of the back, and the heels touch the wall, the pose is produced which is described in books written for tailors on the science of measurement and cutting-out as the super-erect figure. This position will of necessity be stiff, except in very exceptional cases; if there is absence of stiffness, then it is a correct pose. The rules that have been already given form a better guide than the wall test.

The Stiff Pose.

45. At first, until the muscles that ensure a good carriage are developed, the correct pose will be stiff. To overcome this stiffness by a judicious attention to the care and well-being of the proper muscles must be the first object to be attained, for until the correct pose is assumed easily and without any indication of stiffness, exercises will tend to do harm instead of good; therefore pupils should work strenuously to strengthen those muscles that control the correct carriage. At first it is advisable to use gentle exercises so as to secure agility as well as strength, leaving the more severe movements for later work.

The Evil Results of a Bad Pose.

46. It is impossible to lay too great a stress upon the evils that may accrue from exercises done in a bad position, for the bad position is only made worse, and if muscles are strengthened when badly placed it were much better that they were left neglected, for the more

strongly the muscles are developed under these disadvantages, the greater the difficulty of subsequently overcoming the deformity thereby formed.

Systems of Physical Culture.

47. There are numberless systems of physical culture named according to the fancy of the person who thinks fit to introduce a system slightly differing from the others—the name chosen may be that of a country, of the introducer, or descriptive of the object aimed at—but whatever the name may be, all systems are more or less based on the teachings of a Swede named Ling, who formulated exercises whereby work could be localized upon different groups of muscles. While leaving the votaries of the particular systems to fight out for themselves their little differences of opinion as to whether dumb-bells, bar-bells, chest expanders, health machines, gymnastic apparatus, machinery, or no apparatus at all should be used, we will not confine ourselves to any narrow limit, but will make good use of any legitimate means for the attainment of health, beauty, and perfectibility of figure and for the development of a sound vocal apparatus.

PART II.

PRACTICAL WORK.

Eight Special Physical Exercises for the Attainment of a Correct Pose.

The Daily Routine.

The following eight special exercises for the attainment of a Correct Pose should form a daily routine at the beginning, in order that the best possible pose may be assumed. Success may safely be predicted for all who with care, intelligence and perseverance follow out the instructions.

I.—The Foot.

To get the heels firmly fixed on the ground and the toes at right angles.

Place the arms straight down at the sides of the body, the fingers close together, and the thumbs pointing forwards. Stand with the feet firmly planted upon the ground, the inner sides of the feet close together, the toes pointing straight forward.

1. Raise the body slightly upon the heels.
2. Direct the toes outwards until one foot forms a right angle with the other.
3. Lower the body upon the feet.
4. Raise the body upon the heels.
5. Return to the first position.
6. Lower the body upon the feet.

Repeat the exercise from six to twelve times.

Note.—Care must be taken that each foot is moved outwards and inwards at an equal pace, so that at the end of the outward movement each forms an angle of 45° with an imaginary straight line passing through the junction of the heels. The pupil must clearly understand what is meant by an angle of 90° and an angle of 45°.

This exercise, besides teaching what is meant by the term foot pose, is also very useful as a means for learning to balance the body upon the feet—it will be found that the balance is more easily acquired by making the chest prominent, especially if a full breath is taken before the movement. To make the exercise still more complete give the following instructions:—

Inspire through the nose—perform movements 1, 2, 3—Expire. Inspire—perform movements 4, 5, 6--Expire.

II.—The Knee.

To straighten the knee.

Assume the foot pose and let the knees be rigidly straightened with the inner side of one joint almost in contact with the inner side of the other.

1. Bend each knee directly over the toes.
2. Return to the original position.

Repeat the exercise from six to twelve times.

Note.—In bending the knees they should be directed outwards as well as forwards, so that they may reach a point from which a plumb line being dropped will strike the centre of the front of the toe-cap of the boot.

III.—The Hip.

To get the hips retracted.

Assume the foot and knee pose and draw back the hips as far as possible, keeping the knees and feet quite firm.

1. Push the hips forward as far as possible, allowing movement to take place at the hip joints only.
2. Return to the original position.

Repeat the exercise from six to twelve times.

Note.—Carefully note that the knees are not bent throughout this movement.

This exercise is very important because, by the retraction of the hips, the abdomen becomes retracted behind the line of the chest. The weight of the body will be equally distributed to each leg now that the foot, knee, and hip pose are correct.

IV.—The Chest.

To raise the chest.

Assume the foot, knee, and hip pose, and then lower the chin upon the chest by bending the neck.

1. Raise the chin as high as possible until the face becomes parallel with the ceiling.
2. Bend the head and upper spine backwards until you feel the sensation as if the whole of the front of the body were being raised.
3. Return to the original position.

Repeat the exercise from six to twelve times.

Note.—There should be no movement of any part of the body except at the neck and the upper part of the spine. The upper part of the spine should be bent, not the lower; in the backward movement let the head precede, so that the spine is bent from above downwards.

The chin should be kept in as much as possible during the movement.

If properly conducted this important exercise not only raises the chest, but lifts, as it were, the weight of the abdominal viscera off the pelvis, and so is good for relieving pelvic congestion.

V.—The Shoulder.

To get the shoulders back.

1st Exercise.

Assume the foot, knee, hip, and chest pose, and draw the points of the shoulders as far forward as possible.

1. Force the shoulders backwards until the shoulder blades approximate each other at the back as closely as is possible.
2. Return to the original position.

Repeat the exercise from six to twelve times.

Note.—This exercise can be made more effective by placing the hands on the hips with the fingers pointing backwards and the thumbs forwards. Inhale through the nose and carry the elbows straight back as far as possible, and exhale while carrying them forward again.

2nd Exercise.

Assume the foot, knee, and chest pose.

1. Shrug the shoulders upwards as high as possible.
2. Force the shoulders down again as far as possible.

Repeat the exercise from six to twelve times.

Note.—The point of each shoulder should be directed towards the corresponding ear on each side.

VI.—The Chin.

To draw in the chin.

Assume the foot, knee, hip, chest, and shoulder pose, and thrust the chin straight forward as far as it will go.

1. Force it back vigorously.
2. Return to the original position.

Repeat the exercise from six to twelve times.

Note.—This is a very important exercise for strengthening the muscles at the back of the neck, which are all powerful in keeping the head erect. The chin should not be raised or lowered, but always kept upon the same plane throughout the exercise.

VII.—The Head.

To keep the head well balanced upon the neck.

1st Exercise.

Assume the foot, knee, hip, chest, shoulder, and chin pose, and lower the chin upon the chest by bending the neck.

1. Raise the chin as high as possible by straightening the neck until the face is parallel with the ceiling.

2. Return to the original position.

Repeat the exercise from six to twelve times.

Note.—The pupil should look down at the floor while lowering the chin, and look up at the ceiling while raising the chin.

2ND EXERCISE.

Assume poses as in first Exercise, and rotate the head on the neck by turning the face to the left until the chin is in a line with the left shoulder.

1. Return to the centre.
2. Rotate in the same way to the right.
3. Return to the centre.
4. Return to the original position.

Repeat the exercise from six to twelve times.

Note.—The chin should not be raised or lowered, but kept upon the same plane throughout this exercise.

3RD EXERCISE.

Assume poses as in the first Exercise. Let the head incline sideways as far as possible to the left shoulder, and then towards the right shoulder, alternately.

Repeat the exercise from six to twelve times.

Note.—This exercise should be performed by a bending of the neck sideways, no movement of the neck being made either forwards or backwards; and the chin must not be poked forward.

Exercises 1, 2 and 3 give agility and freedom of movement to the neck muscles, which have such important parts to play in balancing the head gracefully.

4TH EXERCISE.

Assume poses as in the first Exercise. Roll the head round upon the neck, using the neck as a pivot, as follows:—

1. While lowering the chin upon the chest let the head incline towards the left shoulder, the chin at the same time being directed towards the left shoulder.

2. While raising the chin let the head incline towards the right shoulder, the chin at the same time being directed towards the right shoulder.

Note.—It will be seen that the fourth Exercise is a combination of Exercises 1, 2, and 3. It is a good exercise for the muscles of the neck, and sometimes relieves a congestive headache. At first it should only be practised once or twice, as it is apt to cause giddiness.

VIII.—The Body.

To get a correct pose at once.

Assume the bad pose—that is, feet badly placed, knees bent forward, chest lowered, shoulders rounded and forward, chin poked forward, and head improperly balanced upon the neck.

Quickly assume the good pose, carrying out all the details enumerated under each different pose.

Repeat the exercise from six to twelve times.

Note.—This exercise is of value in teaching pupils to recognize the difference between a good and a bad position. Carefully examine the different parts of the body and see that each pose is correct, that the ears are level, that the shoulders are level, and that the hips are level.

The Lateral Costal System of Breathing.

Breathing Exercises.

When the importance of the correct pose has been fully realized, exercises for expanding the chest, strengthening the lungs, controlling the breath, and for acquiring the LATERAL COSTAL SYSTEM of breathing may be practised systematically.

The breathing exercises in this series are arranged in a definite order. The first are devoted to the expansion of the chest and lungs by the development of the lungs, which may be called the internal expansion. Then follow exercises with the arms, starting in different positions and performing different movements, so that the muscles that enlarge the chest may be brought into play, and the breath being inspired and expired simultaneously with the arm movements, a combination of the internal and external methods of expansion is produced. The last groups are devoted to methods for controlling the breath by holding it during the exercises. Many of the exercises described are, it will be seen, repetitions of former exercises with additions. Those marked with an asterisk (*) may be regarded as the most important.

The Method of Internal Chest Expansion.

1st Exercise.*

Assume the correct pose—foot, knee, hip, chest, chin, shoulder, and head—place each hand on the ribs at each side of the lower part of the chest, with the fingers and thumb pointing forwards, and slightly draw in the front wall of the abdomen (fig. 1).

1. Inhale deeply through the nose, making the lower part of the chest expand.

2. Exhale vigorously through the mouth.

Repeat from six to twelve times.

Note.—By DRAWING IN the front wall of the abdomen, the organs are fixed in the arch of the diaphragm. THIS IS THE FIRST STEP TO BE TAKEN IN LATERAL COSTAL BREATHING. During the inhalation the expansion of the lower part of the chest (the lateral costal breathing) should be distinctly felt by the hands on each side—the walls of the chest should bulge outwards.

The exhalation may be made either through the nose or the mouth, preferably the latter in cases of students of voice production, as the mouth is used in the formation of sounds in singing and speaking. But the inhalation must be through the nose, so that the air entering the chest may be filtered, warmed, and moistened.

The greatest care must be exercised to prevent any upward movement of the shoulders, AND THERE MUST NOT BE ANY DISTENTION FORWARD OF THE ABDOMEN. It will be well to practise this exercise in a sitting position.

2ND EXERCISE.

Sit well back in a chair with a straight back, reaching as high as the shoulder blades, and let the back of the body touch the back of the chair. Take hold of the under side of the seat of the chair with each hand.

1. Inhale deeply through the nose, making the lower part of the chest expand.
2. Exhale vigorously through the mouth.

Repeat from six to twelve times.

Note.—When properly seated in the chair, the shoulders are fixed at the back by the back of the chair, and are prevented from being raised by the hands holding the seat.

3RD EXERCISE.

Lie perfectly flat upon a table, couch, or bed, with nothing under the head except perhaps a very shallow pillow.

1. Inhale deeply through the nose, making the lower part of the chest expand.
2. Exhale vigorously through the mouth.

Repeat from six to twelve times.

Note.—By lying perfectly flat, the body is necessarily kept in a good position, so that it is well to practise breathing in this position, until the poses have been thoroughly mastered. The shoulders should not be raised, AND THE ABDOMEN MUST NOT BE PROTRUDED.

4TH EXERCISE.*

Sit in an ordinary chair and cross one leg over the other; bend the body forward until the abdomen rests firmly upon the thigh of the leg that is uppermost; grasp the front of the lower leg by interlacing the fingers and holding it tightly just below the knee (fig. 2).

1. Inhale deeply through the nose, making the lower part of the chest expand.

2. Exhale vigorously through the mouth.

Repeat from six to twelve times.

Note.—Protrusive abdominal breathing is prevented by the fixation of the front abdominal wall against the thigh of the upper leg. Collar-bone breathing is prevented by the fixation of the shoulders through the grasping of the lower leg. The only breathing possible is the LATERAL COSTAL BREATHING. By this exercise, therefore, the pupil can be made to fully realize what is meant by the lateral costal system. Another point becomes very evident: there is a great expansion of the chest at the back, where there is an increased space by reason of the backward projection of the ribs. It is most important that this space should be utilized in breathing.

The Methods of Internal and External Chest Expansion Combined.

5TH EXERCISE.

Assume the correct pose and bend the elbows until the thumbnails touch the fronts of the shoulder joints, keep the elbows close to the sides and the upper arms parallel with the body (fig. 3).

1. Raise the arms straight up at the sides of the head to their highest point and inhale deeply through the nose.

2. Return to the original position by forcibly drawing down the elbows to the sides again and exhale vigorously through the mouth.

Repeat from six to twelve times.

6TH EXERCISE.*

Assume the position directed in the fifth Exercise (fig. 3).

1. Raise the arms straight up at the sides of the head to their highest point, inhale deeply through the nose, and at the same time raise the body as high as possible on the tips of the toes (fig. 4).

2. Return to the original position by forcibly drawing down the elbows to the sides again, exhale vigorously through the mouth and lower the body on the heels.

Repeat from six to twelve times.

7TH EXERCISE.

Assume the position directed in the fifth Exercise (fig. 3).

1. Move the elbows from the sides straight forwards and upwards as far as possible. Keep the thumb-nails on the shoulders. Inhale deeply through the nose (fig. 5).

2. Return to the original position by forcibly lowering the elbows to the side and exhale vigorously through the mouth.

Repeat from six to twelve times.

8TH EXERCISE.

Assume the position directed in the fifth Exercise (fig. 3).

1. Move the elbows straight out sideways from the body as high as possible. Keep the thumb-nails on the shoulders, inhale deeply through the nose (fig. 6).

2. Return to the original position by lowering the elbows to the sides and exhale vigorously through the mouth.

Repeat from six to twelve times.

9TH EXERCISE.*

Assume the correct pose and raise the arms from the sides straight upwards and forwards until the arms and hands are stretched out to their fullest extent in front of the body on a level with the shoulder joints (fig. 7).

1. Circle the hands outwards and backwards as far as possible while keeping them on a level with the shoulder joints and inhale deeply through the nose.

2. Return to the original position and exhale vigorously through the mouth.

Repeat from six to twelve times.

10TH EXERCISE.*

Assume the position directed in the ninth Exercise and close the fists.

1. Forcibly draw the elbows back straight past the sides and inhale deeply through the nose (fig. 8).

2. Return to the original position by forcibly thrusting the hands forward and exhale vigorously through the mouth.

Repeat from six to twelve times.

11TH EXERCISE.

Assume the correct pose, close the fists and advance them to a point about one foot in front of each hip joint (fig. 9).

1. Forcibly thrust the fists backwards to a point one foot behind each hip joint, and inhale deeply through the nose.

2. Return to the original position and exhale through the mouth. Repeat from six to twelve times.

Note.—The elbows must be kept perfectly stiff throughout the exercise. The chest should be forcibly thrust forward as the fists are carried back and the breath is inhaled.

12TH EXERCISE.*

Assume the position directed in the eleventh Exercise (fig. 9).

1. Carry the fists backwards to a point one foot behind each hip joint, and then circle them backwards and upwards to a point as high as possible above the head, and about six inches in front of it, making as complete a circle as possible—inhale deeply through the nose (fig. 10).

2. Return to the original position by the reverse way and exhale through the mouth.

Repeat from six to twelve times.

Note.—Although two movements have for the sake of clearness been described, it must be understood that both the upward and downward circle should be unbroken, and the two movements welded into one.

13TH EXERCISE.

Assume the position directed in the eleventh Exercise (fig. 9). Proceed as in the twelfth Exercise, and instead of stopping the fists at the point above the head (as directed) continue the circle until the original position is reached. Inhale deeply through the nose as the arms are raised behind, and exhale through the mouth as they are lowered in front.

Repeat from six to twelve times.

14TH EXERCISE.

Proceed in exactly the same way as in the thirteenth Exercise, but reverse the direction of the circle—that is, circle upwards in front and downwards at the back, but still inhale deeply through the nose as the arms are raised and exhale through the mouth as they are lowered.

Repeat from six to twelve times.

15TH EXERCISE.

Assume the correct pose and interlace the fingers of each hand, the arms being extended behind the body and the palms of the hands being directed upwards.

1. Bend the head backwards by raising the chin until the face is parallel with the ceiling, at the same time force the arms and hands downwards and inhale deeply through the nose.

2. Bend the head forwards by lowering the chin upon the chest, at the same time relax the arms and exhale vigorously through the mouth.

Repeat from six to twelve times.

16TH EXERCISE.

Assume the correct pose and with each hand grasp the opposite forearm as near to the elbow as possible, which should be well pressed into the hollow of the back.

1. Bend the head backwards by raising the chin until the face is parallel with the ceiling and inhale deeply through the nose.

2. Bend the head forwards by lowering the chin upon the chest, at the same time bend the body, preventing the shoulders from going forwards by forcing the arms downwards, and exhale vigorously through the mouth.

Repeat from six to twelve times.

The Control of the Breath.

17TH EXERCISE.*

Assume the correct pose.

1. Raise the arms straight out sideways from the body until the hands and arms are on a level with the top of the shoulders, and inhale deeply through the nose (fig. 11).

2. Hold the breath for five seconds, then slowly count aloud up to six.

3. Return to the original position and exhale vigorously through the mouth.

Repeat from six to twelve times.

18TH EXERCISE.*

Assume the correct pose.

1. Raise the arms straight out sideways from the body until the hands and arms are on a level with the top of the shoulders, and inhale deeply through the nose (fig. 11).

2. Hold the breath, turn the palms upwards, and still further raise the arms until they are stretched to their highest point, straight up at the sides of the head (fig. 4); retain them in this position for five seconds, then lower them until they reach the shoulder level, and turn palms downwards.

3. Return to the original position and exhale vigorously through the mouth.

Repeat from six to twelve times.

19TH EXERCISE.

Assume the correct pose.

1. Raise the arms straight out sideways from the body until the hands and arms are on a level with the top of the shoulders, and inhale deeply through the nose (fig. 11).

2. Hold the breath, turn the palms upwards and bend the elbows, so that the tips of the fingers can touch the top of the shoulders (fig. 12); retain them in this position for five seconds, then straighten out the arms to shoulder level, and turn palms downwards.

3. Return to the original position and exhale vigorously through the mouth.

Repeat from six to twelve times.

20TH EXERCISE.

Assume the correct pose.

1. Raise the arms straight out sideways from the body until the hands and arms are on a level with the top of the shoulders, and inhale deeply through the nose (fig. 11).

2. Hold the breath, turn the palms upwards; retain this position for five seconds, then swing the arms in a circle outwards and backwards until the knuckles touch behind the back.

3. Return to the original position and exhale vigorously through the mouth.

Repeat from six to twelve times.

21ST EXERCISE.

Assume the correct pose.

1. Raise the arms straight out sideways from the body until the hands and arms are on a level with the top of the shoulders, and inhale deeply through the nose (fig. 11).

2. Hold the breath, and bend the elbows so that the tips of the fingers just meet in front of the chest; retain this position for five seconds, then turn the palms inwards, and thrust the hands straight forward to their fullest extent, as in swimming.

3. Return to the original position and exhale vigorously through the mouth.

Repeat from six to twelve times.

22ND EXERCISE.

Assume the correct pose.

1. Raise the arms out sideways from the body until they are stretched to their highest point straight up at the sides of the head, turning the palms at the shoulder level (fig. 4).

2. Hold the breath, and raise the body as high as possible on the tips of the toes; retain it in this position for five seconds, then lower the body upon the heels.

3. Return to the original position and exhale vigorously through the mouth.

Repeat from six to twelve times.

23RD EXERCISE.*

Assume the correct pose.

1. Raise the arms straight out sideways from the body until they are stretched to their highest point straight up at the sides of the head, turning the palms at the shoulder level (fig. 4).

2. Hold the breath and grasp one hand with the other (as in shaking hands) and make an effort as if attempting to raise the body on the toes by pulling the arms upwards while the body is being raised on tiptoe (fig. 13); retain this position for five seconds, and then lower the body upon the heels.

3. Return to the original position and exhale vigorously through the mouth.

Repeat from six to twelve times.

Note.—Although it is impossible to pull the body upwards by the hands grasped above the head, yet if the instructions are properly carried out a distinct feeling is experienced as if the chest were being pulled up by the arms.

24TH EXERCISE.*

Assume the correct pose.

1. Raise the arms straight out sideways from the body until they are stretched to their highest point straight up at the sides of the head (fig. 4).

2. Hold the breath and raise the body as high as possible on the tips of the toes, then slowly lower the body by bending the hips and knees until the lower part of the back almost sits upon the raised heels, slowly rise again to the fullest height on tiptoe.

3. Return to the original position and exhale vigorously through the mouth.

Repeat from three to six times.

Note.—The knees should be bent outwards and forwards instead of directly forwards.

Chest Expansion by the Abdominal Muscles.

25TH EXERCISE.*

Lie flat on the back.

1. Raise the head as high as possible without moving the shoulders from the floor, and inhale deeply through the nose.

2. Return to the lying position and exhale through the mouth.

Repeat from six to twelve times.

Note.—This and the following exercises may be practised upon the floor, a table, bed, or couch; but there must not be any support placed under the head, and the legs must be kept rigidly straight.

The result of this movement should be tested by placing the hands upon the upper part of the abdomen. It will be found that the upper part of the abdominal muscles becomes hard and contracted as the head is raised, and that simultaneously the lower part of the chest is enlarged from side to side. This consequently is a particularly good exercise, and should be practised night and morning by everybody; it can be easily performed on the bed by removing the pillows. It has a gentle but very effective action upon the abdominal muscles and upon the expansion of the chest, and there is absolutely no danger whatever of any harm being done as there may be by some abdominal exercises unless great care is taken.

26TH EXERCISE.

(Note the words in italics.)

Lie flat on the back, with the arms either stretched out to their fullest extent at the sides of the head or crossed upon the chest.

1. Quickly raise the body from the lying into the sitting position.

2. Quickly return to the lying position.

Repeat from six to twelve times.

Note.—The feet should be held down, either by placing them under a strap or by a companion. The easiest way to raise the body from the lying to the sitting position is to stretch out the arms to their fullest extent at the sides of the head, swing them forwards vigorously, and quickly raise the body, so that it is helped up as it were by the swing of the arms. The most difficult way is to raise the body very slowly, with the arms in the same position, taking special care to leave the arms and the head to come up last, so that there is then extra weight to lift in addition to the weight of the body. *The exercise performed then is very severe, and is only suitable for the very muscular; it should on no account be practised by women and children.* The more slowly the body is raised and lowered the greater is the amount of work brought to play upon the abdominal muscles, so that the exercise can be graduated to suit all cases. Harm can very easily be inflicted upon the pupil by making the strain too severe.

This exercise is perhaps more commonly taught than any other, and as teachers are so fond of teaching feats of strength instead of confining their attention to the acquisition of health, it makes it absolutely necessary to point out these details regarding it.

27TH EXERCISE.

Lie flat on the back and fold the arms across the chest.

1. Raise the legs from the horizontal to the perpendicular.
2. Return to the original position.

Repeat from six to twelve times.

Note.—This exercise, like the last, can be graduated in strength —thus, one leg can be raised at a time, or both raised together, with the knees straight; if the knees are bent the exercise is easier still. If the arms are stretched out at the sides of the head and the hands grasp a strap fixed to the floor, the feet can be carried past the perpendicular, right over the head, in which case the lower part of the back is raised from the floor; but this is a performance suitable only for the muscular. *The slower the movement the greater the strain.*

28TH EXERCISE.*

Lie flat on the back and place one hand flat upon the abdomen and the other upon the upper part of the chest.

1. Take a deep breath through the nose and force the front wall of the abdomen backwards, as if trying to make it meet the spine behind.
2. Let it go forward again and breathe out through the mouth.

Repeat from six to twelve times.

Note.—This exercise is certainly one of the most important of the series. By the hands the chest will be felt to be thrust forward whenever the abdomen is forced backwards, and *vice versâ*. After a little practice it is well to take a deep breath, and then while holding the breath to make the backward and forward movement of the abdomen from six to twelve times, and then finally breathe out vigorously through the mouth. It is quite obvious that this exercise is good for getting rid of the hollow under the collar bones, a deformity caused by a contracted chest. It also has a very extraordinary power of correcting a stooping gait, in that the more the chest is expanded the better the shoulders become set and the straighter the upper part of the spine becomes.

For all these reasons, then, this exercise should be practised daily in bed on waking and before going to sleep, and the improvement in the carriage of the body alone will prove more than an ample reward for the trouble taken.

29TH EXERCISE.

Lie flat on the back with the fingers of one hand upraised in front of the body and with the other hand flat upon the lower ribs.

1. Take a deep breath through the nose, having previously slightly retracted the front abdominal wall.

2. Hold the breath while with the upraised finger time is slowly beaten; make from six to twelve strokes each time.

3. Breathe out vigorously and forcibly and try to exhale more air than was inhaled.

Repeat from six to twelve times.

Note.—Vary number 3 by sometimes breathing the air as slowly as possible, controlling the respiration by the steady relaxation of the contracted abdominal muscles.

Chest Expansion by the Back and Arm Muscles.

30TH EXERCISE.

Lie flat on the back and let a companion, standing at the head, grasp the arms which are lying at the side just below the elbows.

1. Inhale deeply through the nose, and let the companion draw the arms in a circle outwards and upwards until they meet above the head.

2. Keep the arms stretched above the head for two seconds.

3. Circle the arms in the reverse direction back to the sides again, and exhale vigorously through the mouth.

Repeat from **six** to twelve times.

Note.—This is Dr. Sylvester's method for imitating breathing in artificial respiration. It is an excellent breathing exercise.

31ST EXERCISE.

Lie flat on the chest on a table with the shoulders level with the edge of the table, so that the head and neck are overhanging.

1. Raise the head as high as possible without moving the shoulders from the table, and inhale deeply through the nose.

2. Lower the head as far as it will go below the level of the table, and exhale vigorously through the mouth.

Repeat from six to twelve times.

Note.—The feet in this and the following exercises should be fixed either by a strap or by a companion. The exercise is excellent, as it is good practice for the muscles at the back of the neck, which are important in preserving the erect figure.

32ND EXERCISE.

Lie in the prone position as in the last exercise, but with the hips level with the edge of the table, so that the head, neck, and body are overhanging.

1. Raise the body as high as possible without moving the hips from the table, and inhale deeply through the nose.

2. Lower the body as far as possible below the level of the table, and exhale through the mouth.

Repeat from six to twelve times.

Note.—This is a severe and tiring exercise, and, therefore, must be practised with care; but it is excellent for the strong muscles of the back. The feet must be fixed either by a strap or by a companion sitting on them.

33RD EXERCISE.

Lie on the back with the shoulders level with the edge of the table, place the palms of the hands on the back of the head with the finger-tips touching.

1. Lower the head as far as possible, and inhale deeply through the nose.

2. Raise the head until the chin touches the chest, and exhale through the mouth.

Repeat from six to twelve times.

Special Exercises for the Abdominals to secure a Good Figure, a Graceful Carriage, and a Good Digestion.

34TH EXERCISE.*

Assume the correct pose (and to keep a good balance move each foot about six inches outwards so that they are a foot apart) raise the arms straight up to their highest point by the sides of the head.

1. Circle the hands downwards and forwards and bend the body slowly and deliberately until the fingers touch the toes and exhale through the mouth (fig. 14).

2. Return to the original position and inhale deeply through the nose.

Repeat from six to twelve times.

Note.—The feat of being able to touch the toes without bending the knees is one that all, male and female, old and young, should be able to do, and it is astounding how soon by practice the stoutest and stiffest will become more proficient and what benefit will be derived from the constant endeavor.

35TH EXERCISE.*

Assume the correct pose and raise one arm only to its highest point at the side of the head.

1. Circle the hand downwards and forwards and bend the body until the fingers touch the toe of the opposite foot and exhale through the mouth (fig. 15).

2. Return to the original position and inhale deeply through the nose.

Repeat from six to twelve times, using the right and left hand alternately.

Note.—The fingers of the Right hand must touch the Left toe, and *vice versâ*, so that the body will be bent slightly sideways. The feet in this exercise to be in the foot pose.

36TH EXERCISE.*

Assume the correct pose and place the hands on the hips with the fingers pointing forwards and the thumb backwards.

1. Bend the body directly to the left so that it is bent sideways over the left hip (fig. 16).

2. Bend the body directly to the right by a side movement over the right hip.

Repeat from six to twelve times.

Note.—It is very necessary to bend the body directly to the side, and not to the front or the back, as the purpose of the exercise is to work the side-abdominal muscles.

37TH EXERCISE.*

Assume the correct pose and straighten out the arms to the fullest extent in front of the body on a level with the shoulders, turn the palms inwards and interlace the fingers of each hand (fig. 17).

1. Swing the arms as far as possible to the left by twisting the body at the hips.

2. Swing the arms as far as possible to the right.

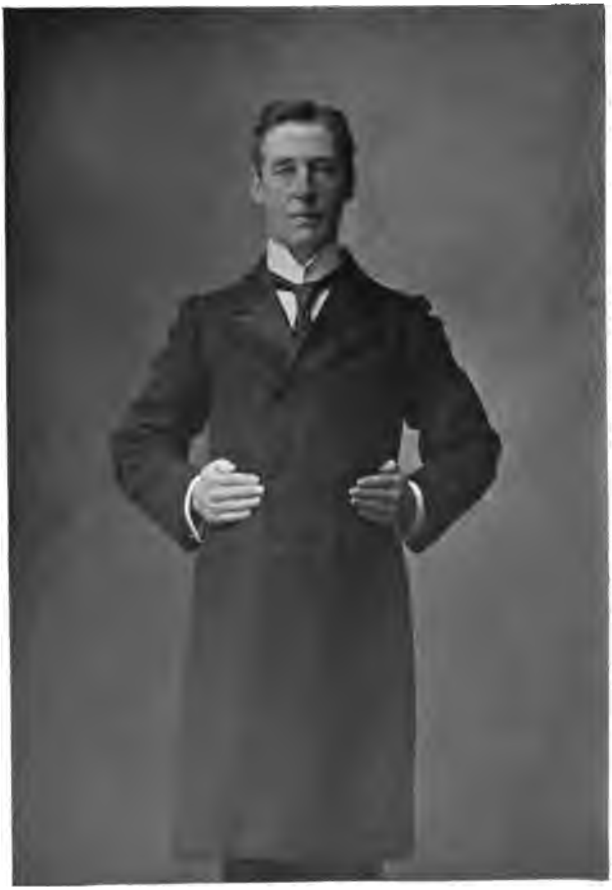
Repeat the exercise from six to twelve times.

Note.—The body should be moved from the hips, and the feet kept firmly planted upon the ground, then the oblique abdominals are brought well into play.

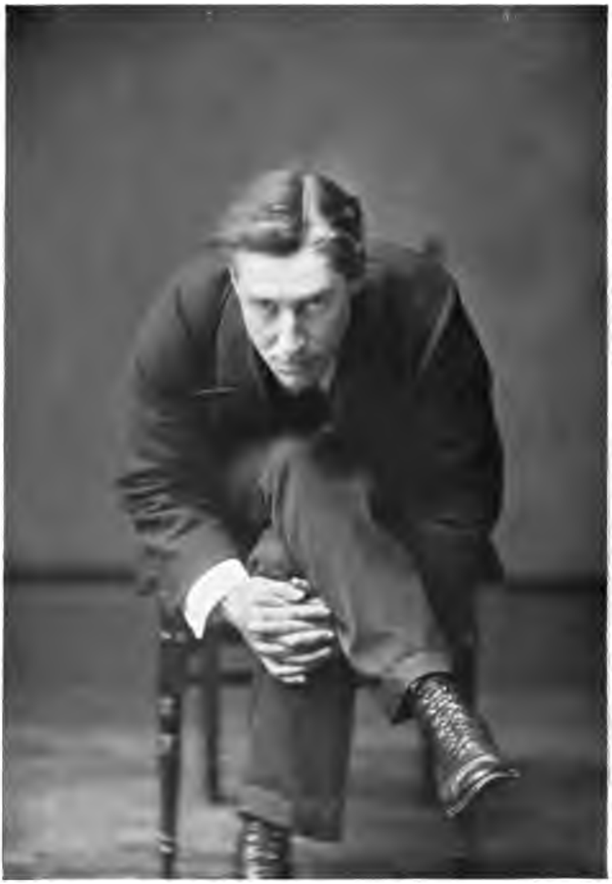
Conclusion.

In presenting this series of exercises the Author does not wish readers to think that these are the only exercises that can be used for the purpose of developing the chest and controlling the breath by the lateral costal system of breathing; his object has been rather to prove that the theories propounded in the earlier part can be worked out practically. It is his sincere wish that all readers will not be content merely to read the description of the exercises, but will put them into practice, for by doing so they will find that after a little perseverance their breathing, health, and consequently their voice will rapidly improve. For the sake of simplicity the exercises have been arranged under definite headings. It will be well for the beginner to take an exercise from each section, study it well, then practise it assiduously before attempting the others; one exercise performed intelligently is worth more than twenty done carelessly.

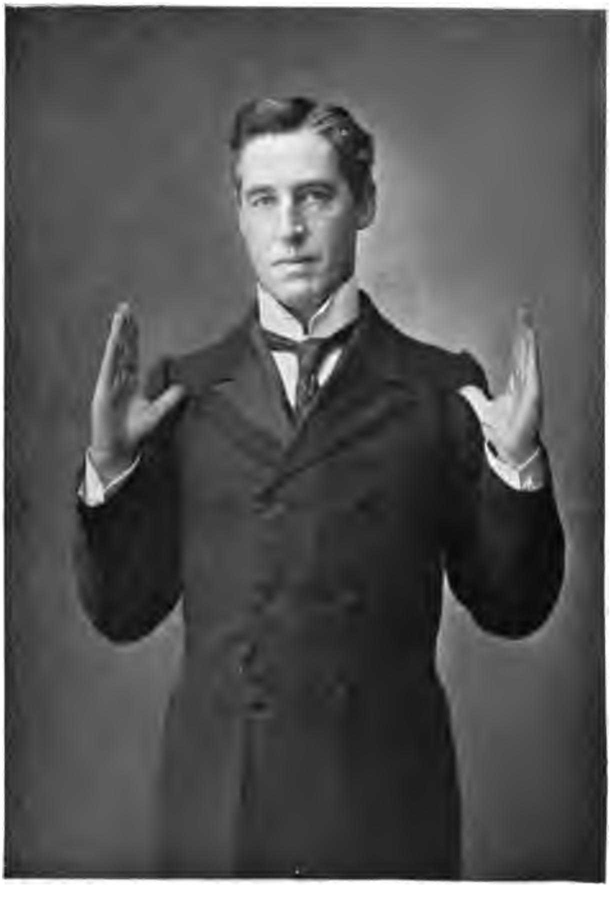
It may seem that the whole scheme of exercises is too elaborate for most teachers and others interested; but it must be remembered that all the exercises are not to be done every day, and that each new exercise grows out of those preceding. Perhaps the greatest feature of the system is the fact that the abdominal muscles play such an important *rôle*. Let each satisfy himself practically on this point and then he cannot fail to be convinced of the utility of THE LATERAL COSTAL SYSTEM OF BREATHING.



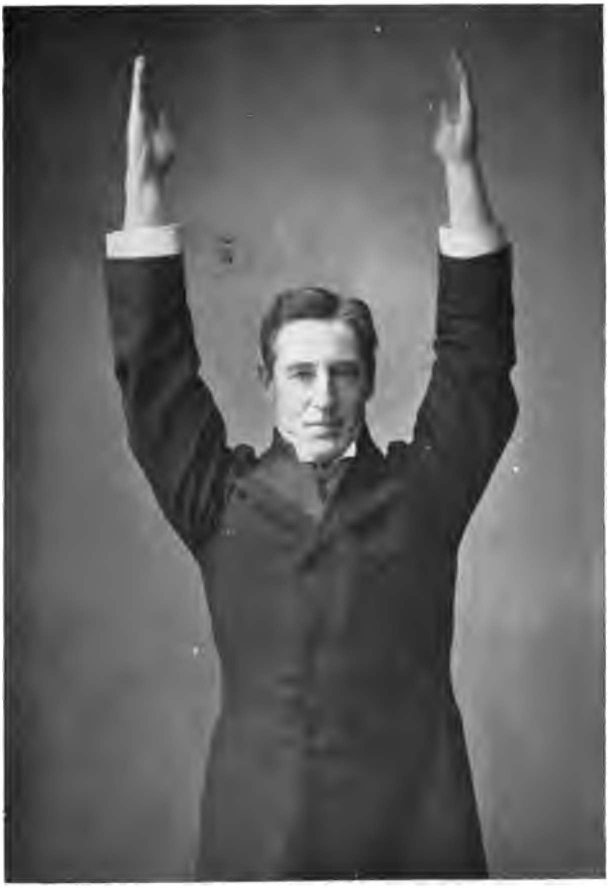
FIRST EXERCISE.—FIG. 1.



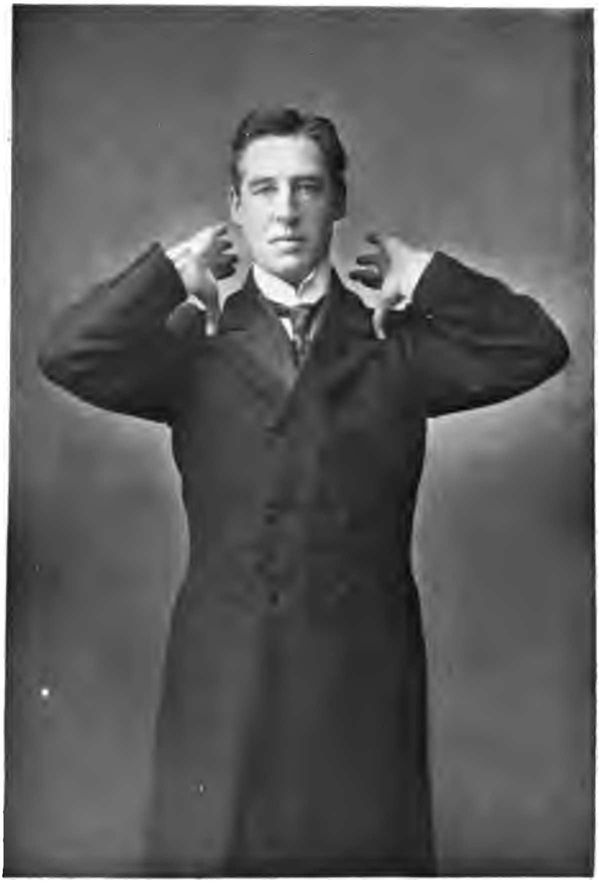
FOURTH EXERCISE.—FIG. 2.



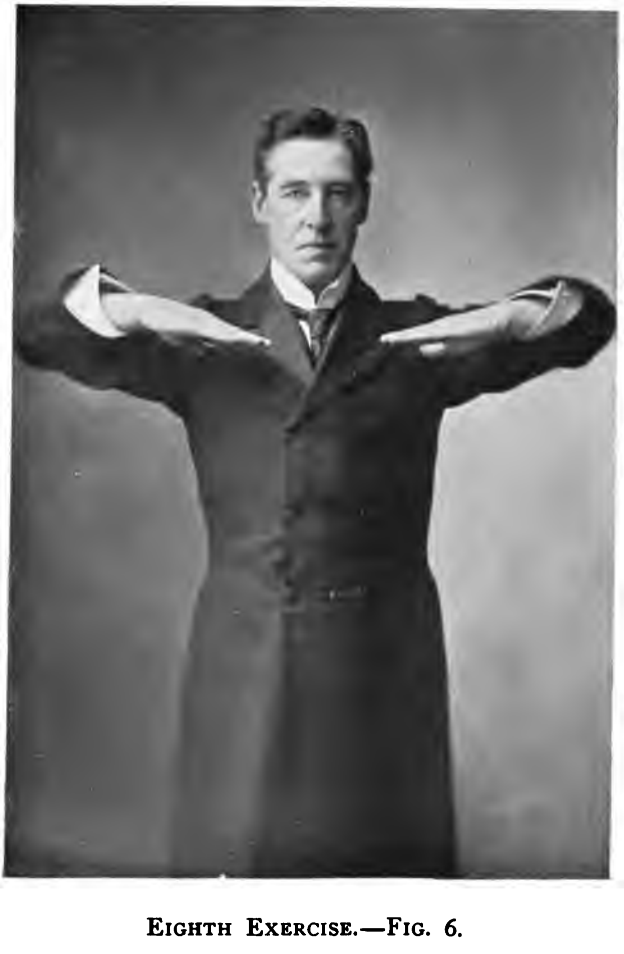
FIFTH EXERCISE.—FIG. 3.



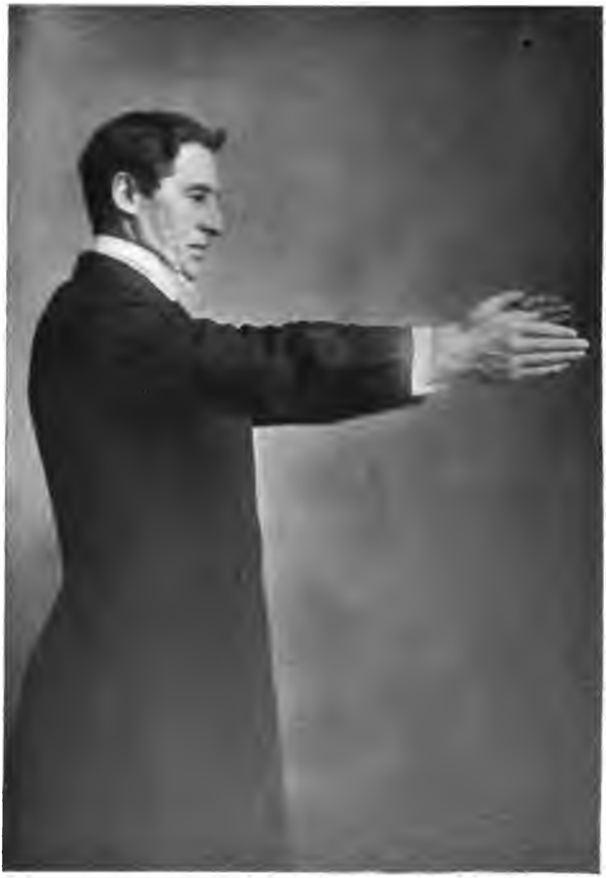
SIXTH EXERCISE.—FIG. 4.



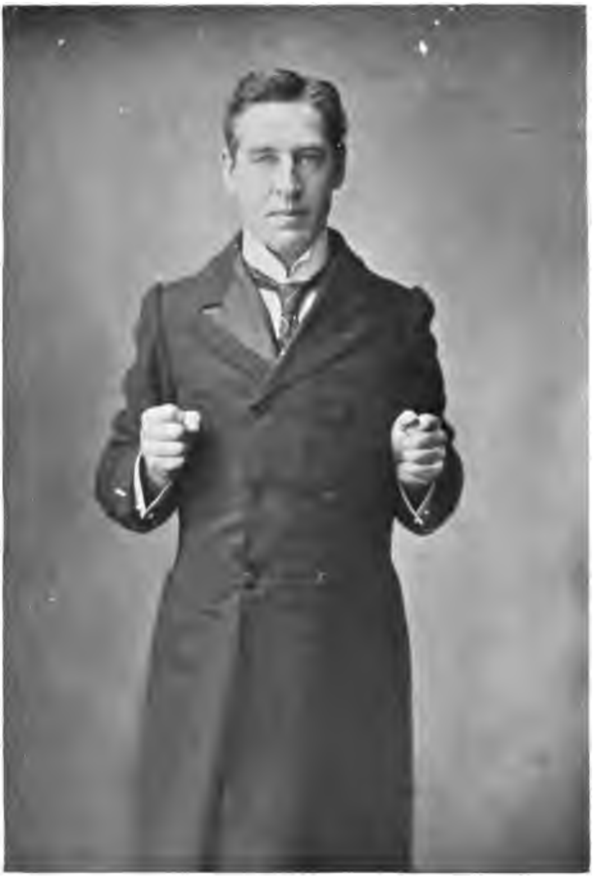
Seventh Exercise.—Fig. 5.



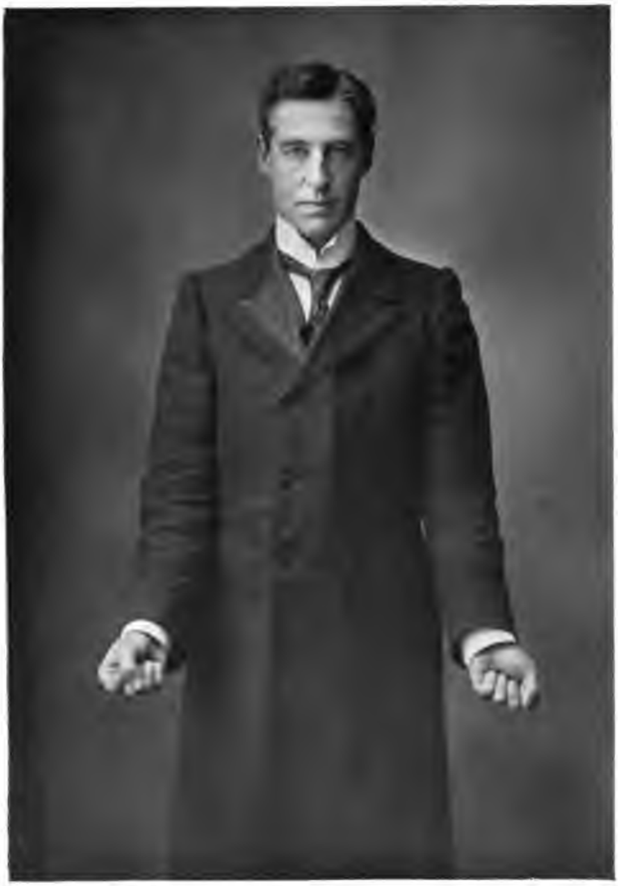
EIGHTH EXERCISE.—FIG. 6.



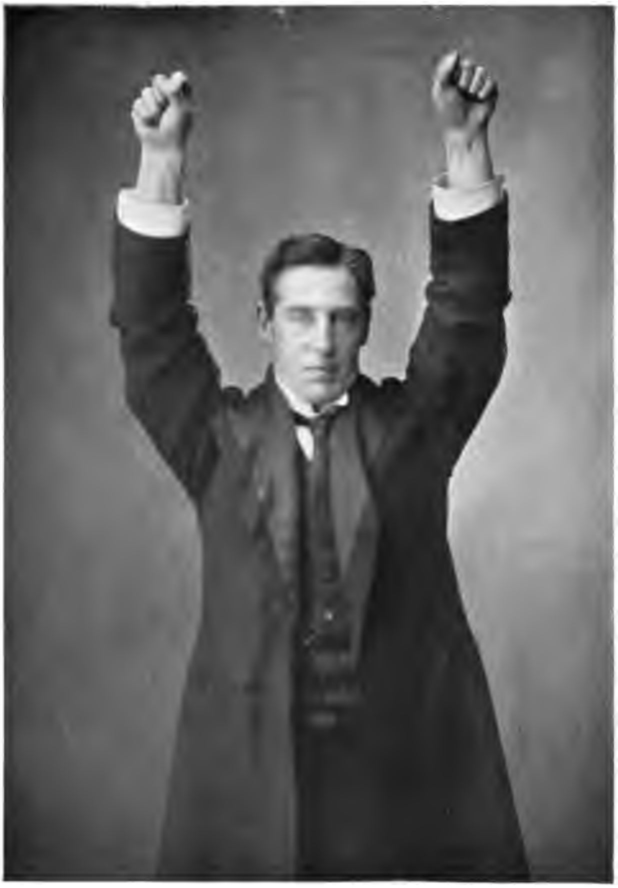
NINTH EXERCISE.—FIG. 7.



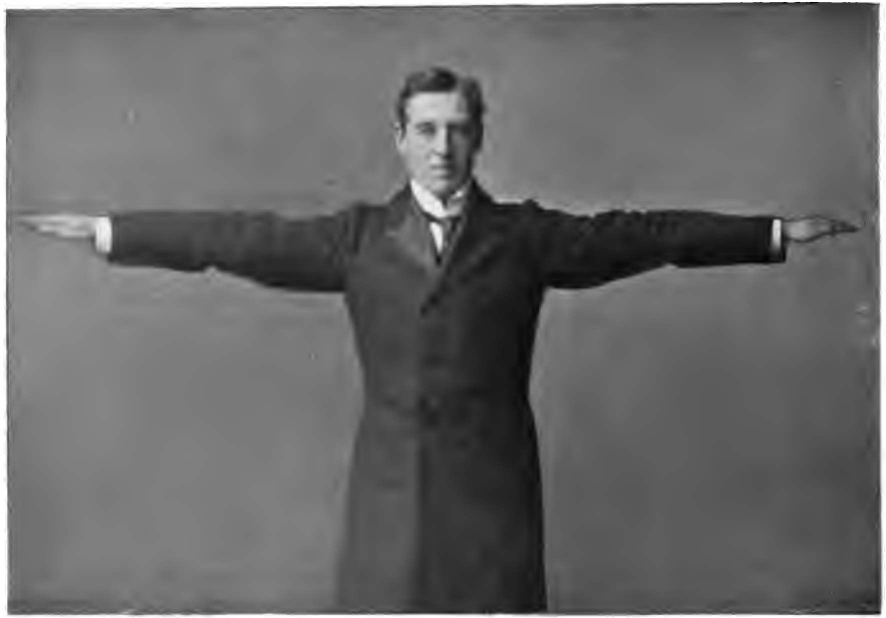
Tenth Exercise.—Fig. 8.



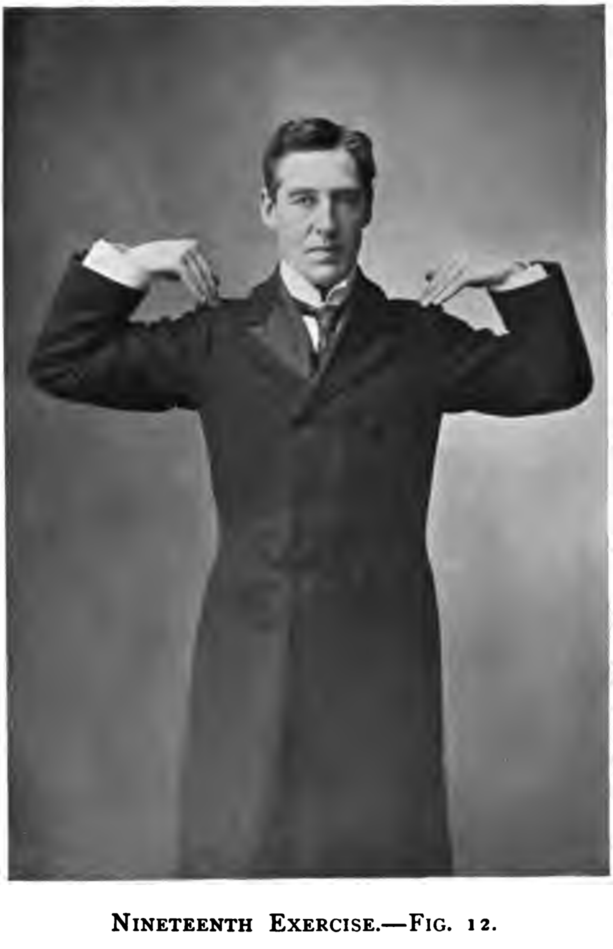
ELEVENTH EXERCISE.—FIG. 9.



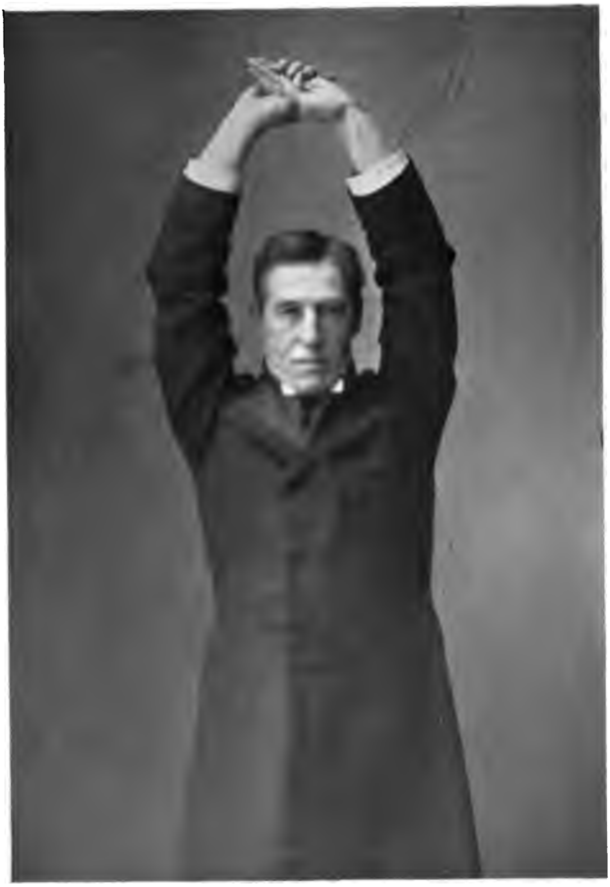
TWELFTH EXERCISE.—FIG. 10.



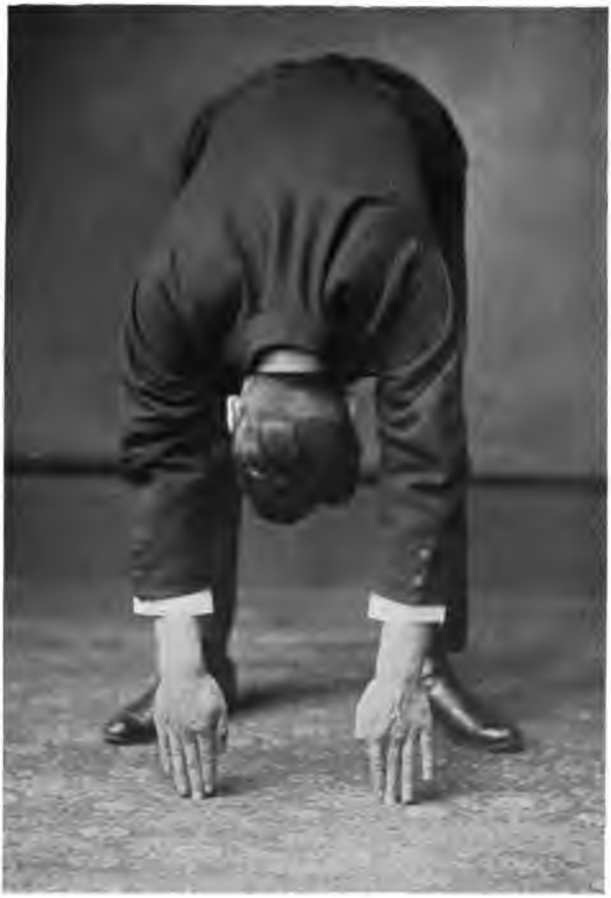
SEVENTEENTH EXERCISE.—FIG. 11.



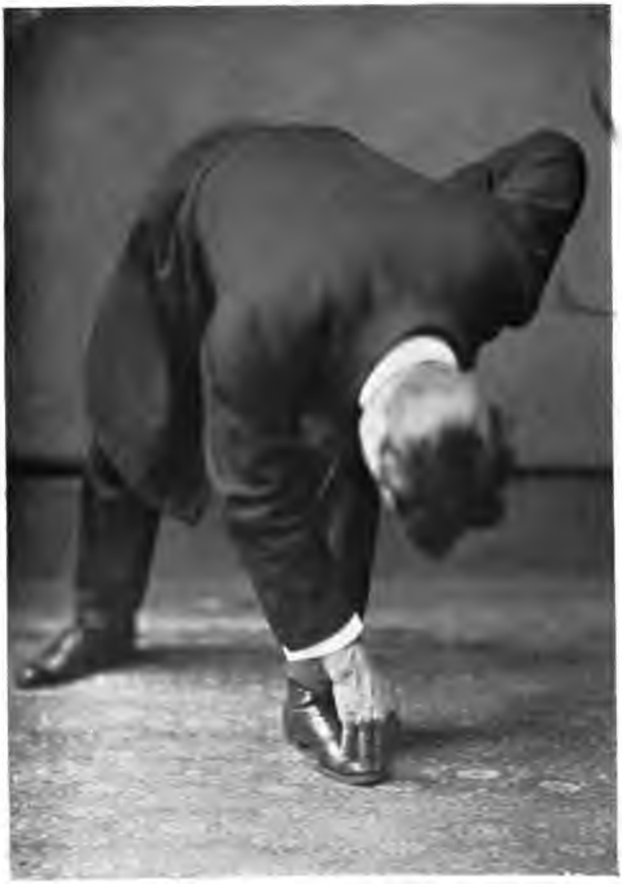
NINETEENTH EXERCISE.—FIG. 12.



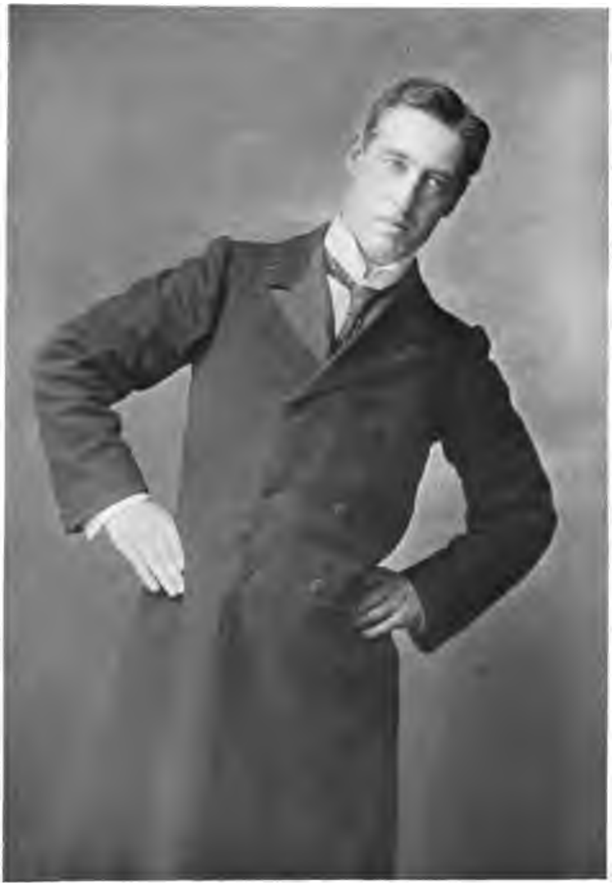
TWENTY-THIRD EXERCISE.—FIG. 13.



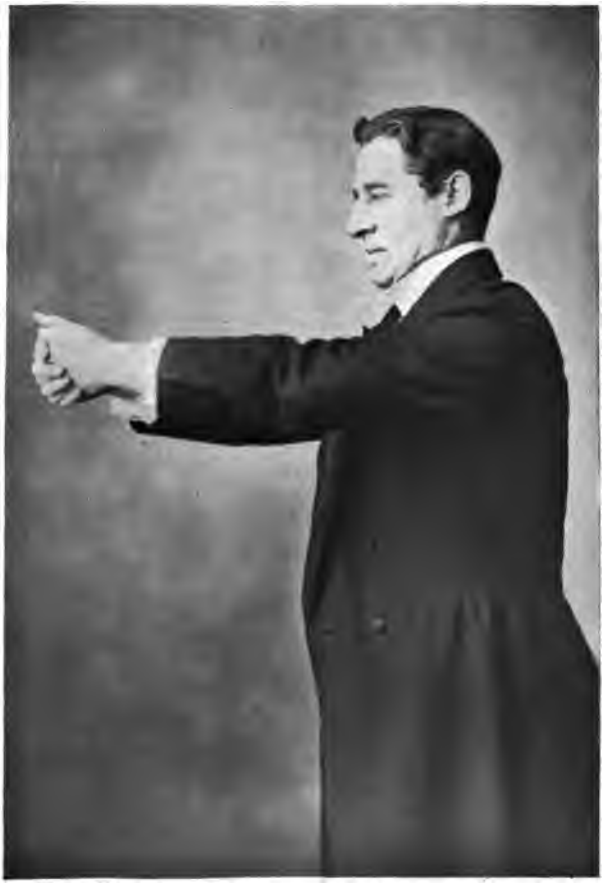
THIRTY-FOURTH EXERCISE.—FIG. 14.



THIRTY-FIFTH EXERCISE.—FIG. 15.



THIRTY-SIXTH EXERCISE.—FIG. 16.



THIRTY-SEVENTH EXERCISE.—FIG. 17.

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PREFACE.

Having had frequent opportunities during my long residence in England, both of listening to and conducting public performances of Mendelssohn's Oratorio "Elijah," I venture to think that an edition of this noble work containing directions for "expression, phrasing and breathing," such as have been and are used by the many distinguished Artists whom it has been my good fortune to hear, will prove instructive and valuable to the younger generation of singers. I do not claim any originality for my edition, having simply endeavored to indicate as clearly and faithfully as possible the reading of the music which is now sanctioned by usage or tradition.

ALBERTO RANDEGGER.

NOTE.—As some of Mendelssohn's "Metronome Marks" in the original score are no longer observed—and as the composer himself was no great believer in "Metronomes,"—I have added the figures indicating the *Tempi* generally adopted at present, and placed them in brackets above the original one. The sign (,) indicates where breath is to be taken.

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Air—Come unto Him (Messiah).
Air—How beautiful are the feet (Messiah).
Air—I know that my Redeemer liveth (Messiah).
Recit.—No more in Zion......................
Air—Wise men flatt'ring, may deceive you } (Judas Maccabæus).
Recit.—O grant it, Heaven.............
Air—So shall the lute and harp awake } (Judas Maccabæus).
Recit.—O let eternal honours crown His name
Air—From mighty kings he took the spoil..... } (Judas Maccabæus).
Recit.—To Heaven's Almighty King we kneel
Air—O Liberty! thou choicest treasure........ } (Judas Maccabæus).
Air—Pious Orgies (Judas Maccabæus).
Recit.—Ye sacred Priests........
Air—Farewell, ye limpid springs } (Jephtha).
Air—O! had I Jubal's lyre (Joshua).
Recit.—O, worse than death.....
Air—Angels ever bright and fair } (Theodora).

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Recit.—Behold! a Virgin shall conceive.....
Air—O thou that tellest good tidings to Zion } (Messiah).
Recit.—Then shall the eyes of the blind be opened
Air—He shall feed His flock like a shepherd....... } (Messiah).
Air—He was despised and rejected (Messiah).
Air—Father of Heav'n (Judas Maccabæus).
Air—Return, return, O God of Hosts (Samson).
Air—Their land brought forth frogs (Israel in Egypt).
Air—Thou shalt bring them in (Israel in Egypt).
Air—O Lord, whose mercies (Saul).
Air—Lord, to Thee each night and day.
Recit.—Great prophetess, my soul's on fire
Air—In the battle fame pursuing........... } (Deborah).
Recit.—'Twill be a painful separation
Air—In gentle murmurs will I mourn } (Jephtha).
Recit.—See, she blushing turns her eyes
Air—Hymen, haste! thy torch prepare. } (Semele).

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CONTENTS.

Recit.—Comfort ye, my people.....
Aria—Ev'ry valley shall be exalted } (Messiah).
Recit.—Thy rebuke hath broken his heart......
Arioso—Behold, and see if there be any sorrow } (Messiah).
Recit.—He was cut off out of the land of the living
Air—But Thou didst not leave his soul in hell...... } (Messiah).
Recit.—He that dwelleth in heaven
Air—Thou shalt break them........ } (Messiah).
Recit.—'Tis well, my friends
Air—Call forth thy powers.. } (Judas Maccabæus).
Recit.—Thanks to my brethren............
Air—How vain is man who boasts in fight } (Judas Maccabæus).
Recit.—My arms! against this Georgias will I go
Air—Sound an alarm................................ } (Judas Maccabæus).
Recit.—O loss of sight
Air—Total eclipse.... } (Samson).
Recit.—Deeper and deeper still
Air—Waft her, angels.......... } (Jephtha).
Air—The enemy said (Israel in Egypt).
Recit.—My grief for this...............
Air—Why does the God of Israel sleep } (Samson).
Air—Where'er you walk (Semele).
Recit.—O God, who from the suckling's mouth
Air—Sing songs of praise .... } (Esther).

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CONTENTS.

Recit.—Thus saith the Lord ....
Air.—But who may abide the day of His coming } (Messiah).
Recit.—For, behold, darkness shall cover the earth
Air—The people that walked in darkness........... } (Messiah).
Air—Why do the nations so furiously rage together (Messiah).
Recit.—Behold, I tell you a mystery
Air—The trumpet shall sound....... } (Messiah).
Recit.—I feel the Deity within
Air—Arm, arm ye brave....... } (Judas'Maccabæus).
Recit.—Be comforted............
Air—The Lord worketh wonders } (Judas Maccabæus).
Recit.—The good we wish for.................
Air—Thy glorious deeds inspir'd my tongue } (Samson).
Air—Honour and arms (Samson).
Air—How willing my paternal love (Samson).
Recit.—It must be so.................. .....
Air—Pour forth no more unheeded pray'rs } (Jephtha).
Air—Revenge, Timotheus cries (Alexander's Feast).
Recit.—I'll hear no more....
Air—Pluck root and branch. } (Esther).

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